

SEQUENCE LISTING

<110> De Tomassi, Amedeo
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Tranboni, Cinzia

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<220>
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Leu	Ser	Ser	Thr	Glu	Ala	Gln	Thr	Ile	Leu	Asp	Thr	Tyr	Arg	Thr	Gln		
			1445					1450						1455			
Pro	Gly	Leu	Pro	Ala	Ile	Gly	Ala	Asn	Leu	Asp	Glu	Trp	Ala	Asp	Leu		
	1460					1465							1470				
Phe	Ser	Met	Val	Asn	Pro	Glu	Pro	Ser	Phe	Val	Asn	Thr	Ala	Lys	Arg		
	1475				1480						1485						
Thr	Ala	Asp	Asn	Tyr	Val	Leu	Leu	Thr	Ala	Ala	Gln	Leu	Gln	Leu	Cys		
	1490				1495						1500						
His	Gln	Tyr	Gly	Tyr	Ala	Ala	Pro	Asn	Asp	Ala	Pro	Arg	Trp	Gln	Gly		
1505				1510					1515						1520		
Ala	Arg	Leu	Gly	Lys	Lys	Pro	Cys	Gly	Val	Leu	Trp	Arg	Leu	Asp	Gly		
			1525					1530						1535			
Ala	Asp	Ala	Cys	Pro	Gly	Pro	Glu	Pro	Ser	Glu	Val	Thr	Arg	Tyr	Gln		
	1540					1545							1550				
Met	Cys	Phe	Thr	Glu	Val	Asn	Thr	Ser	Gly	Thr	Ala	Ala	Leu	Ala	Val		
	1555					1560							1565				
Gly	Val	Gly	Val	Ala	Met	Ala	Tyr	Leu	Ala	Ile	Asp	Thr	Phe	Gly	Ala		
	1570				1575					1580							
Thr	Cys	Val	Arg	Arg	Cys	Trp	Ser	Ile	Thr	Ser	Val	Pro	Thr	Gly	Ala		
1585				1590					1595						1600		

Thr Val Ala Pro Val Val Asp Glu Glu Glu Ile Val Glu Glu Cys Ala
 1605 1610 1615
 Ser Phe Ile Pro Leu Glu Ala Met Val Ala Ala Ile Asp Lys Leu Lys
 1620 1625 1630
 Ser Thr Ile Thr Thr Thr Ser Pro Phe Thr Leu Glu Thr Ala Leu Glu
 1635 1640 1645
 Lys Leu Asn Thr Phe Leu Gly Pro His Ala Ala Thr Ile Leu Ala Ile
 1650 1655 1660
 Ile Glu Tyr Cys Cys Gly Leu Val Thr Leu Pro Asp Asn Pro Phe Ala
 1665 1670 1675 1680
 Ser Cys Val Phe Ala Phe Ile Ala Gly Ile Thr Thr Pro Leu Pro His
 1685 1690 1695
 Lys Ile Lys Met Phe Leu Ser Leu Phe Gly Gly Ala Ile Ala Ser Lys
 1700 1705 1710
 Leu Thr Asp Ala Arg Gly Ala Leu Ala Phe Met Met Ala Gly Ala Ala
 1715 1720 1725
 Gly Thr Ala Leu Gly Thr Trp Thr Ser Val Gly Phe Val Phe Asp Met
 1730 1735 1740
 Leu Gly Gly Tyr Ala Ala Ser Ser Thr Ala Cys Leu Thr Phe Lys
 1745 1750 1755 1760
 Cys Leu Met Gly Glu Trp Pro Thr Met Asp Gln Leu Ala Gly Leu Val
 1765 1770 1775
 Tyr Ser Ala Phe Asn Pro Ala Ala Gly Val Val Gly Val Leu Ser Ala
 1780 1785 1790
 Cys Ala Met Phe Ala Leu Thr Thr Ala Gly Pro Asp His Trp Pro Asn
 1795 1800 1805
 Arg Leu Leu Thr Met Leu Ala Arg Ser Asn Thr Val Cys Asn Glu Tyr
 1810 1815 1820
 Phe Ile Ala Thr Arg Asp Ile Arg Arg Lys Ile Leu Gly Ile Leu Glu
 1825 1830 1835 1840
 Ala Ser Thr Pro Trp Ser Val Ile Ser Ala Cys Ile Arg Trp Leu His
 1845 1850 1855
 Thr Pro Thr Glu Asp Asp Cys Gly Leu Ile Ala Trp Gly Leu Glu Ile
 1860 1865 1870
 Trp Gln Tyr Val Cys Asn Phe Phe Val Ile Cys Phe Asn Val Leu Lys
 1875 1880 1885
 Ala Gly Val Gln Ser Met Val Asn Ile Pro Gly Cys Pro Phe Tyr Ser
 1890 1895 1900
 Cys Gln Lys Gly Tyr Lys Gly Pro Trp Ile Gly Ser Gly Met Leu Gln
 1905 1910 1915 1920
 Ala Arg Cys Pro Cys Gly Ala Glu Leu Ile Phe Ser Val Glu Asn Gly
 1925 1930 1935
 Phe Ala Lys Leu Tyr Lys Gly Pro Arg Thr Cys Ser Asn Tyr Trp Arg
 1940 1945 1950
 Gly Ala Val Pro Val Asn Ala Arg Leu Cys Gly Ser Ala Arg Pro Asp
 1955 1960 1965
 Pro Thr Asp Trp Thr Ser Leu Val Val Asn Tyr Gly Val Arg Asp Tyr
 1970 1975 1980
 Cys Lys Tyr Glu Lys Leu Gly Asp His Ile Phe Val Thr Ala Val Ser
 1985 1990 1995 2000
 Ser Pro Asn Val Cys Phe Thr Gln Val Pro Pro Thr Leu Arg Ala Ala
 2005 2010 2015
 Val Ala Val Asp Gly Val Gln Val Gln Cys Tyr Leu Gly Glu Pro Lys
 2020 2025 2030

Thr Pro Trp Thr Thr Ser Ala Cys Cys Tyr Gly Pro Asp Gly Lys Gly
 2035 2040 2045
 Lys Thr Val Lys Leu Pro Phe Arg Val Asp Gly His Thr Pro Gly Val
 2050 2055 2060
 Arg Met Gln Leu Asn Leu Arg Asp Ala Leu Glu Thr Asn Asp Cys Asn
 2065 2070 2075 2080
 Ser Thr Asn Asn Thr Pro Ser Asp Glu Ala Val Ser Ala Leu Val
 2085 2090 2095
 Phe Lys Gln Glu Leu Arg Arg Thr Asn Gln Leu Leu Glu Ala Ile Ser
 2100 2105 2110
 Ala Gly Val Asp Thr Thr Lys Leu Pro Ala Pro Ser Ile Glu Glu Val
 2115 2120 2125
 Val Val Arg Lys Arg Gln Phe Arg Ala Arg Thr Gly Ser Leu Thr Leu
 2130 2135 2140
 Pro Pro Pro Pro Arg Ser Val Pro Gly Val Ser Cys Pro Glu Ser Leu
 2145 2150 2155 2160
 Gln Arg Ser Asp Pro Leu Glu Gly Pro Ser Asn Leu Pro Pro Ser Pro
 2165 2170 2175
 Pro Val Leu Gln Leu Ala Met Pro Met Pro Leu Leu Gly Ala Gly Glu
 2180 2185 2190
 Cys Asn Pro Phe Thr Ala Ile Gly Cys Ala Met Thr Glu Thr Gly Gly
 2195 2200 2205
 Gly Pro Asp Asp Leu Pro Ser Tyr Pro Pro Lys Lys Glu Val Ser Glu
 2210 2215 2220
 Trp Ser Asp Glu Ser Trp Ser Thr Ala Thr Thr Ala Ser Ser Tyr Val
 2225 2230 2235 2240
 Thr Gly Pro Pro Tyr Pro Lys Ile Arg Gly Lys Asp Ser Thr Gln Ser
 2245 2250 2255
 Ala Pro Ala Lys Arg Pro Thr Lys Lys Lys Leu Gly Lys Ser Glu Phe
 2260 2265 2270
 Ser Cys Ser Met Ser Tyr Thr Trp Thr Asp Val Ile Ser Phe Lys Thr
 2275 2280 2285
 Ala Ser Lys Val Leu Ser Ala Thr Arg Ala Ile Thr Ser Gly Phe Leu
 2290 2295 2300
 Lys Gln Arg Ser Leu Val Tyr Val Thr Glu Pro Arg Asp Ala Glu Leu
 2305 2310 2315 2320
 Arg Lys Gln Lys Val Thr Ile Asn Arg Gln Pro Leu Phe Pro Pro Ser
 2325 2330 2335
 Tyr His Lys Gln Val Arg Leu Ala Lys Glu Lys Ala Ser Lys Val Val
 2340 2345 2350
 Gly Val Met Trp Asp Tyr Asp Glu Val Ala Ala His Thr Pro Ser Lys
 2355 2360 2365
 Ser Ala Lys Ser His Ile Thr Gly Leu Arg Gly Thr Asp Val Arg Ser
 2370 2375 2380
 Gly Ala Ala Arg Lys Ala Val Leu Asp Leu Gln Lys Cys Val Glu Ala
 2385 2390 2395 2400
 Gly Glu Ile Pro Ser His Tyr Arg Gln Thr Val Ile Val Pro Lys Glu
 2405 2410 2415
 Glu Val Phe Val Lys Thr Pro Gln Lys Pro Thr Lys Lys Pro Pro Arg
 2420 2425 2430
 Leu Ile Ser Tyr Pro His Leu Glu Met Arg Cys Val Glu Lys Met Tyr
 2435 2440 2445
 Tyr Gly Gln Val Ala Pro Asp Val Val Lys Ala Val Met Gly Asp Ala
 2450 2455 2460

Tyr Gly Phe Val Asp Pro Arg Thr Arg Val Lys Arg Leu Leu Ser Met
 2465 2470 2475 2480
 Trp Ser Pro Asp Ala Val Gly Ala Thr Cys Asp Thr Val Cys Phe Asp
 2485 2490 2495
 Ser Thr Ile Thr Pro Glu Asp Ile Met Val Glu Thr Asp Ile Tyr Ser
 2500 2505 2510
 Ala Ala Lys Leu Ser Asp Gln His Arg Ala Gly Ile His Thr Ile Ala
 2515 2520 2525
 Arg Gln Leu Tyr Ala Gly Gly Pro Met Ile Ala Tyr Asp Gly Arg Glu
 2530 2535 2540
 Ile Gly Tyr Arg Arg Cys Arg Ser Ser Gly Val Tyr Thr Thr Ser Ser
 2545 2550 2555 2560
 Ser Asn Ser Leu Thr Cys Trp Leu Lys Val Asn Ala Ala Ala Glu Gln
 2565 2570 2575
 Ala Gly Met Lys Asn Pro Arg Phe Leu Ile Cys Gly Asp Asp Cys Thr
 2580 2585 2590
 Val Ile Trp Lys Ser Ala Gly Ala Asp Ala Asp Lys Gln Ala Met Arg
 2595 2600 2605
 Val Phe Ala Ser Trp Met Lys Val Met Gly Ala Pro Gln Asp Cys Val
 2610 2615 2620
 Pro Gln Pro Lys Tyr Ser Leu Glu Glu Leu Thr Ser Cys Ser Ser Asn
 2625 2630 2635 2640
 Val Thr Ser Gly Ile Thr Lys Ser Gly Lys Pro Tyr Tyr Phe Leu Thr
 2645 2650 2655
 Arg Asp Pro Arg Ile Pro Leu Gly Arg Cys Ser Ala Glu Gly Leu Gly
 2660 2665 2670
 Tyr Asn Pro Ser Ala Ala Trp Ile Gly Tyr Leu Ile His His Tyr Pro
 2675 2680 2685
 Cys Leu Trp Val Ser Arg Val Leu Ala Val His Phe Met Glu Gln Met
 2690 2695 2700
 Leu Phe Glu Asp Lys Leu Pro Glu Thr Val Thr Phe Asp Trp Tyr Gly
 2705 2710 2715 2720
 Lys Asn Tyr Thr Val Pro Val Glu Asp Leu Pro Ser Ile Ile Ala Gly
 2725 2730 2735
 Val His Gly Ile Glu Ala Phe Ser Val Val Arg Tyr Thr Asn Ala Glu
 2740 2745 2750
 Ile Leu Arg Val Ser Gln Ser Leu Thr Asp Met Thr Met Pro Pro Leu
 2755 2760 2765
 Arg Ala Trp Arg Lys Lys Ala Arg Ala Val Leu Ala Ser Ala Lys Arg
 2770 2775 2780
 Arg Gly Gly Ala His Ala Lys Leu Ala Arg Phe Leu Leu Trp His Ala
 2785 2790 2795 2800
 Thr Ser Arg Pro Leu Pro Asp Leu Asp Lys Thr Ser Val Ala Arg Tyr
 2805 2810 2815
 Thr Thr Phe Asn Tyr Cys Asp Val Tyr Ser Pro Glu Gly Asp Val Phe
 2820 2825 2830
 Val Thr Pro Gln Arg Arg Leu Gln Lys Phe Leu Val Lys Tyr Leu Ala
 2835 2840 2845
 Val Ile Val Phe Ala Leu Gly Leu Ile Ala Val Gly Leu Ala Ile Ser
 2850 2855 2860

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 <213> Artificial Sequence

<220>

<223> Partial GBV-B Replicon Sequence

<400> 4

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35

<210> 5

<211> 56

<212> DNA

<213> Artificial Sequence

<220>

<223> Partial GBV-B Replicon Sequence

<400> 5

gaccgtagca catgcctggtt atttctactc aaacagggcg cgccatgatt gaacaa

56

<210> 6

<211> 74

<212> DNA

<213> Artificial Sequence

<220>

<223> Partial GBV-B Replicon Sequence

<400> 6

gaccgtagca catgcctggtt atttctactc aaacaagtcc tgtacctgcg cccgggcgcg 60
ccatgattga acaa 74

<210> 7

<211> 98

<212> DNA

<213> Artificial Sequence

<220>

<223> Partial GBV-B Replicon Sequence

<400> 7

gaccgtagca catgcctggtt atttctactc aaacaagtcc tgtacctgcg cccagaacgc 60
gcaagaacaa gcagacgggg cgcgccatga ttgaacaa 98

<210> 8

<211> 8

<212> PRT

<213> Artificial Sequence

<220>

<223> Partial GBV-B Replicon Sequence

<400> 8

Met Gly Arg Ala Met Ile Glu Gln

1

5

<210> 9

<211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Partial GBV-B Replicon Sequence

<400> 9
 Met Pro Val Ile Ser Thr Gln Thr Gly Arg Ala Met Ile Glu Gln
 1 5 10 15

<210> 10
 <211> 21
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Partial GBV-B Replicon Sequence

<400> 10
 Met Pro Val Ile Ser Thr Gln Thr Ser Pro Val Pro Ala Pro Gly Arg
 1 5 10 15
 Ala Met Ile Glu Gln
 20

<210> 11
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Partial GBV-B Replicon Sequence

<400> 11
 Met Pro Val Ile Ser Thr Gln Thr Ser Pro Val Pro Ala Pro Arg Thr
 1 5 10 15
 Arg Lys Asn Lys Gln Thr Gly Arg Ala Met Ile Glu Gln
 20 25

<210> 12
 <211> 291
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Partial HCV Replicon Sequence

<221> MOD_RES
 <222> (29)...(29)
 <223> Xaa = Glu or Gly

<221> MOD_RES
 <222> (107)...(107)
 <223> Xaa = Thr or Ile

<221> MOD_RES
 <222> (124)...(124)
 <223> Xaa = Asp, Gly, His, or Asn

<221> MOD_RES
 <222> (136)...(136)
 <223> Xaa = Arg or Gly

<221> MOD_RES
 <222> (142)...(142)
 <223> Xaa = Pro or Ser

<221> MOD_RES
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 <223> Xaa = Pro or Cys

<221> MOD_RES
 <222> (146)...(146)
 <223> Xaa = Ala, Asp, Ser, or Thr

<221> MOD_RES
 <222> (151)...(151)
 <223> Xaa = Ser, Ile, or Arg

<221> MOD_RES
 <222> (245)...(245)
 <223> Xaa = Arg or Gly

<400> 12

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Ala	Lys	Ala	Val	Asp	Phe	Val	Pro	Val	Glu	Ser	Met	Xaa	Thr	Thr	Met
			20					25					30		
Arg	Ser	Pro	Val	Phe	Thr	Asp	Asn	Ser	Ser	Pro	Pro	Ala	Val	Pro	Gln
		35				40						45			
Thr	Phe	Gln	Val	Ala	His	Leu	His	Ala	Pro	Thr	Gly	Ser	Gly	Lys	Ser
	50				55						60				
Thr	Lys	Val	Pro	Ala	Ala	Tyr	Ala	Ala	Gln	Gly	Tyr	Lys	Val	Leu	Val
65				70					75					80	
Leu	Asn	Pro	Ser	Val	Ala	Ala	Thr	Leu	Gly	Phe	Gly	Ala	Tyr	Met	Ser
			85					90					95		
Lys	Ala	His	Gly	Ile	Asp	Pro	Asn	Ile	Arg	Xaa	Gly	Val	Arg	Thr	Ile
		100					105					110			
Thr	Thr	Gly	Ala	Pro	Leu	Thr	Ser	Met	Leu	Thr	Xaa	Pro	Ser	His	Ile
	115					120						125			
Thr	Ala	Glu	Thr	Ala	Lys	Arg	Xaa	Leu	Ala	Arg	Gly	Ser	Xaa	Xaa	Ser
	130				135						140				
Leu	Xaa	Ser	Ser	Ser	Ala	Xaa	Gln	Leu	Ser	Ala	Pro	Ser	Leu	Lys	Ala
145				150					155					160	
Thr	Cys	Thr	Thr	Arg	His	Asp	Ser	Pro	Asp	Ala	Asp	Leu	Ile	Glu	Ala
			165					170					175		
Asn	Leu	Leu	Trp	Arg	Gln	Glu	Met	Gly	Gly	Asn	Ile	Thr	Arg	Val	Glu
		180				185						190			
Ser	Glu	Asn	Lys	Val	Val	Ile	Leu	Asp	Ser	Phe	Glu	Pro	Leu	Gln	Ala
		195				200						205			

Glu	Glu	Asp	Glu	Arg	Glu	Val	Ser	Val	Pro	Ala	Glu	Ile	Leu	Arg	Arg
210						215					220				
Ser	Arg	Lys	Phe	Pro	Arg	Ala	Tyr	Ser	Ile	Glu	Pro	Leu	Asp	Leu	Pro
225					230					235					240
Gln	Ile	Ile	Gln	Xaa	Leu	His	Gly	Leu	Ser	Ala	Phe	Ser	Leu	His	Ser
				245					250					255	
Tyr	Ser	Pro	Gly	Glu	Ile	Asn	Arg	Val	Ala	Ser	Cys	Leu	Arg	Lys	Leu
			260					265					270		
Gly	Val	Pro	Pro	Leu	Arg	Val	Trp	Arg	His	Arg	Ala	Arg	Ser	Val	Arg
		275					280					285			
Ala	Arg	Leu													
290															

<210> 13
 <211> 270
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Partial GBV-B Replicon Sequence

Gly	His	Val	Ile	Gly	Met	Phe	Thr	Ala	Ala	Arg	Asn	Ser	Gly	Gly	Ser
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Val	Ser	Gln	Ile	Arg	Val	Arg	Pro	Leu	Val	Cys	Ala	Gly	Tyr	His	Pro
			20				25						30		
Gln	Tyr	Thr	Ala	His	Ala	Thr	Leu	Asp	Thr	Lys	Pro	Thr	Val	Pro	Asn
		35					40					45			
Glu	Tyr	Ser	Val	Gln	Ile	Leu	Ile	Ala	Pro	Thr	Gly	Ser	Gly	Lys	Ser
		50				55					60				
Thr	Lys	Leu	Pro	Leu	Ser	Tyr	Met	Gln	Glu	Lys	Tyr	Glu	Val	Leu	Val
65					70					75				80	
Leu	Asn	Pro	Ser	Val	Ala	Thr	Thr	Ala	Ser	Met	Pro	Lys	Tyr	Met	His
				85					90					95	
Ala	Thr	Tyr	Gly	Val	Asn	Pro	Asn	Cys	Tyr	Phe	Asn	Gly	Lys	Cys	Thr
			100					105					110		
Asn	Thr	Gly	Ala	Ser	Lys	Thr	Val	Lys	Leu	Pro	Phe	Arg	Val	Asp	Gly
		115					120					125			
His	Thr	Pro	Gly	Val	Arg	Met	Gln	Leu	Asn	Leu	Arg	Asp	Ala	Leu	Glu
		130				135					140				
Thr	Asn	Asp	Cys	Asn	Ser	Thr	Asn	Asn	Thr	Pro	Ser	Asp	Glu	Ala	Ala
145					150					155				160	
Val	Ser	Ala	Leu	Val	Phe	Lys	Gln	Glu	Leu	Arg	Arg	Thr	Asn	Gln	Leu
				165					170					175	
Leu	Glu	Ala	Ile	Ser	Ala	Gly	Val	Asp	Thr	Thr	Lys	Leu	Pro	Ala	Pro
			180					185					190		
Ser	Ile	Glu	Glu	Val	Val	Val	Arg	Lys	Arg	Gln	Phe	Arg	Ala	Arg	Thr
		195					200					205			
Gly	Ser	Tyr	Thr	Val	Pro	Val	Glu	Asp	Leu	Pro	Ser	Ile	Ile	Ala	Gly
		210				215					220				
Val	His	Gly	Ile	Glu	Ala	Phe	Ser	Val	Val	Arg	Tyr	Thr	Asn	Ala	Glu
225					230					235				240	
Ile	Leu	Arg	Val	Ser	Gln	Ser	Leu	Thr	Asp	Met	Thr	Met	Pro	Pro	Leu
				245					250					255	

Arg Ala Trp Arg Lys Lys Ala Arg Ala Val Leu Ala Ser Ala
260 265 270

<210> 14
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide Primer

<400> 14
gtaggcggcg ggactcat 18

<210> 15
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide Primer

<400> 15
tcagggccat ccaagtcaa 19

<210> 16
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide Probe

<400> 16
tcgcgtgatg acaagcgcca ag 22

<210> 17
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide Primer

<400> 17
gatggattgc acgcagggtt 19

<210> 18
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide Primer

<400> 18
cccagtcata gccgaatagc c

21

<210> 19
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Oligonucleotide Probe

<400> 19
tccggccgct tgggtggag

19